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CONNOLLY BOVE LODGE & HUTZ LLP			KOSACK, JOSEPH R	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TIM JUNGKAMP, ROBERT BAUMANN,  
MICHAEL BARTSCH, GERD HADERLEIN,  
HERMANN LUYKEN, and JENS SCHEIDEL

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Appeal 2010-005701  
Application 10/586,452  
Technology Center 1600

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Before DEMETRA J. MILLS, FRANCISCO C. PRATS, and MELANIE L. McCOLLUM, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

This is an appeal under 35 U.S.C. § 134 involving claims to a separating process. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

#### STATEMENT OF THE CASE

Claims 1-14 are pending and on appeal (App. Br. 2). The claims have not been argued separately and therefore stand or fall together. 37 C.F.R. § 41.37(c)(1)(vii). We will focus on claim 1, which reads as follows:

1. A process for separating mixtures of isomeric pentenenitriles, in which at least one isomer is depleted from the mixture, which comprises effecting the separation of the mixtures of isomeric pentenenitriles selected from the group consisting of

- mixtures comprising 2-methyl-3-butenenitrile and 3-pentenenitrile,
- mixtures comprising 2-methyl-3-butenenitrile and (Z)-2-methyl-2-butenenitrile,
- mixtures comprising cis-2-pentenenitrile and 3-pentenenitrile by distilling under a pressure of from 0.01 to 0.5 bar and
- mixtures comprising (E)-2-methyl-2-butenenitrile and 3-pentenenitrile by distilling under a pressure of from 0.02 to 0.5 bar.

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as obvious in view of Jungkamp et al. (WO 02/26698 A1, Apr. 4, 2002) (Ans. 3).

#### ISSUE

Has the Examiner set forth a prima facie case that the process of claim 1 would have been obvious and, if so, have Appellants provided sufficient evidence to rebut the prima facie case?

#### FINDINGS OF FACT

1. Jungkamp discloses:

a process for the distillative separation of pentene nitrile isomers which have a relative volatility alpha ranging from 1.0 to 1.3 in the pressure range from 1 to 500 kPa, wherein the

distillation is carried out in the presence of a liquid diluent which forms with the pentene nitrile isomers, under the same pressure conditions, azeotropes whose relative volatility alpha is higher than that of the pentene nitrile isomers to be separated. (Jungkamp ¶ [0001]<sup>2</sup>.)

2. Jungkamp lists pentene nitrile mixtures for which the process is “[p]articularly suitable” (*id.* at ¶ [0014]).

3. Jungkamp also discloses that the “distillation can advantageously be carried out at a pressure ranging from 1 to 200 kPa, preferably from 50 to 100 kPa, and especially under atmospheric pressure” (*id.* at ¶ [0029]).

4. The Specification lists the relative volatility at atmospheric pressure of claimed mixtures as follows:

Pentenenitrile isomer pair	Relative volatility at atmospheric pressure
2-Methyl-3-butenenitrile / trans-3-pentenenitrile	1.72
cis-2-Pentenenitrile / trans-3-pentenenitrile	1.55
(E)-2-Methyl-2-butenenitrile / trans-3-pentenenitrile	1.19
2-Methyl-3-butenenitrile / (Z)-2-methyl-2-butenenitrile	1.12

(Spec. 1).

## PRINCIPLES OF LAW

“[I]t is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456 (CCPA 1955). “Only if the ‘results of optimizing a variable’ are ‘unexpectedly good’ can a patent be obtained for the claimed critical range.” *In re Geisler*, 116 F.3d

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<sup>2</sup> The point citations to Jungkamp refer to its US equivalent -- US 2004/0039221 A1, Feb. 26, 2004.

1465, 1469 (Fed. Cir. 1997) (quoting *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)).

## ANALYSIS

Jungkamp discloses “a process for the distillative separation of pentene nitrile isomers which have a relative volatility alpha ranging from 1.0 to 1.3 in the pressure range from 1 to 500 kPa” (Finding of Fact (FF) 1). Jungkamp lists pentene nitrile mixtures for which the process is “[p]articularly suitable” (FF 2). However, we agree with the Examiner that “[i]t would be obvious to one of ordinary skill to take the method proven by Jungkamp et al. and apply it to other mixtures of pentenenitrile isomers” (Ans. 4). In particular, it would have been obvious to apply Jungkamp’s method to at least the mixtures encompassed by claim 1 that have a relative volatility alpha between 1.0 and 1.3 (*see* FF 4).

With regard to the claimed pressures, we agree with the Examiner that, “[e]ven though the Appellant[s] ha[ve] shown in the instant specification that distillation efficiency is increased at lower pressures, . . . the suggestion by Jungkamp et al. that the distillation may be done at lower pressures and the overall *prima facie* case for obviousness is stronger than the evidence of increased efficiency” (Ans. 7). In this regard, we note that Jungkamp discloses “a pressure ranging from 1 to 200 kPa” (FF 3), which as noted by the Examiner “contains the instantly claimed range of pressures” (Ans. 7). Moreover, Jungkamp discloses a preferred range of from 50 to 100 kPa (FF 3), which overlaps the claimed ranges at 0.5 bar (i.e., 50 kPa). Given these teachings, we do not find the data provided in the Specification sufficient to overcome the *prima facie* case.

## CONCLUSION

The Examiner has set forth a prima facie case that the process of claim 1 would have been obvious and Appellants have not provided sufficient evidence to rebut the prima facie case. We therefore affirm the obviousness rejection of claim 1. Claims 2-14 fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

## TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

**AFFIRMED**

alw

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